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AMSAT NEWS SERVICE
ANS-048

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org

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ANS-048 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 048.01
>From AMSAT HQ SILVER SPRING, MD.
February 17, 2013
To All RADIO AMATEURS
BID: $ANS-048.01

Monday February 18 OSCAR 7 Close Approach With Orbital Debris

According to orbital predictions from United States Joint Space Operations Center (JSpOC) the OSCAR 7 amateur radio satellite is heading for a close call with orbital space debris on Monday, February 18 at 22:06 UTC.

Please post your AO-7 reception reports after this event via amsat-bb@amsat.org and also via the Live OSCAR Satellite Status Page at: http://oscar.dcarr.org/

The near-miss is predicted with the following parameters:

Primary Object: OSCAR 7 (SCC# 7530)
Secondary Object: SCC# 18116
Time of Closest Approach: 18 FEB 2013 22:06 UTC

Overall miss distance: 57 meters

Radial (dU) miss distance: 25 meters
In-Track (dV) miss distance: -25 meters
Cross-track (dW) miss distance: 46 meters

Primary Radial Error (U): 11 meters
Primary In-Track Error (U): 57 meters
Primary Cross-track Error (U): 6 meters

Secondary Radial Error (U): 12 meters
Secondary In-Track Error (U): 55 meters
Secondary Cross-Track Error (U): 11 meters

[ANS thanks Drew Glasbrenner, KO4MA and the United States Joint
Space Operations Center for the above information]

UK Space Mission - STRaND-1 Plans for Launch on February 25

A UK mission, jointly developed by the University of Surrey's Sur-
rey Space Centre (SSC) and Surrey Satellite Technology Limited
(SSTL), to send the world's first smartphone satellite into orbit,
is due to launch on February 25 from India on PSLV-C20. This launch
will also carry the ocean study spacecraft SARAL as well as satel-
lites carrying amateur radio payloads.

STRaND-1 will be the first UK CubeSat to be launched and has been
developed by talented space engineers and researchers at Surrey with
the majority of the design and developmental work being carried out
in their spare time. The build and test phase of the project has
been completed in just three months. At the heart of STRaND-1 is a
Google Nexus One smartphone with an Android operating system.

During the first phase of the mission, STRaND-1 will use a number of
experimental 'Apps' to collect data while a high-speed linux-based
CubeSat computer developed by SSC takes care of the satellite. During
phase two, the STRaND-1 team plan to switch the satellite's in-orbit
operations to the smartphone, testing the capabilities of a number of
standard smartphone components for a space environment. The satellite
will be commissioned and operated from the Surrey Space Centre's
ground station at the University of Surrey.

Being the first smartphone satellite in orbit is just one of many
'firsts' that STRaND-1 is hoping to achieve. It will also fly inno-
vative new technologies such as a 'WARP DRiVE' (Water Alcohol Resist-
ojet Propulsion Deorbit Re-entry Velocity Experiment) and electric
Pulsed Plasma Thrusters (PPTs); both 'firsts' to fly on a nanosatel-
lite. It is also flying a 3D printed part - believed to be the first
to fly in space!

A software-based speech synthesiser will be included to pay homage
to the UOSAT family of satellites OSCAR 9 and 11, that were launched
in 1980 & 1982. There will be an amateur radio AX.25 packet radio
downlink on 437.575 MHz using data rates of 9k6 or 19k2 bps.

On-line articles of the STRaND-1 mission can be found at:
http://www.amsat-uk.org/
http://spaceref.com/news/viewsr.html?pidC314

[ANS thanks AMSAT-UK and Spaceref.com for the above information]

Additional Satellites on India's PSLV-C20 Launch on February 25

The STRaND-1 smart phone based CubeSat will share the ride to space with additional satellites:

+ SARAL (Satellite with ARgos and ALtiKa) ocean study spacecraft is a joint ISRO CNES mission aimed at sun-synchronous orbit with descending node at 18:00 local time, and altitude around 800 km. Ka-band radar altimeter operating at 35.75 GHz. http://smsc.cnes.fr/SARAL/

+ NEOSSat (Near Earth Object Surveillance Satellite) space telescope that will split its time 50/50 to search for near-Earth asteroids that could potentially impact the Earth, and search for satellites and space debris in orbit around the Earth. Research project for Defence Research and Development Canada (DRDC). http://www.asc-csa.gc.ca/eng/satellites/neossat/

+ Sapphire Canadian Department of National Defence first dedicated military satellite, designed to provide tracking data on space objects at orbit altitudes between 6,000km and 40,000km, data will be shared with the US Space Surveillance Network.

http://www.sstl.co.uk/Missions/Sapphire/Sapphire/Sapphire The-Mission

+ CanX-3a, BRITE (BRIght-star Target Explorer) small satellite designed to make photometric observations of bright stars in order to study their variability. Built by the University of Toronto Institute for Aerospace Studies Space Flight Laboratory, and operated by the Universit de Montr al and University of Vienna. http://www.utias-sfl.net/nanosatellites/CanX3/

+ TUGSat-1 (Technische Universit t Graz Satellit), BRITE Austria
 small satellite from Austria designed to make photometric observations of bright stars in order to study their variability. The IARU Amateur Satellite Frequency Coordination status pages note that it will be using S-Band for telemetry downlinks and will have a 145 MHz CW beacon. http://www.tugsat.tugraz.at/

+ AAUSat 3 1U cubesat developed and constructed by students from Department of Electronic Systems at Aalborg University Denmark, testbed for a pair of AIS receivers concentrating on the area around Greenland in cooperation with the Danish Maritime Authority. The IARU Amateur Radio coordinated frequency is 437.425 MHz and the radio link will use Viterbi and Reed Solomon encoding. http://www.space.aau.dk/aausat3/

[ANS thanks AMSAT-UK and the Zarya Space Calendar for the above information - http://www.zarya.info/Calendar.php]

Amateur Satellite Allocations on the Agenda at Vienna

In the coming months meetings will take place in both IARU Region 1 and Region 2 to discuss HF and VHF bandplans.

The IARU Region 1 2013 Interim Meeting in Vienna April 19-21 will be discussing two proposals relating to the Amateur-Satellite Service:

+ VIE13_C4_02 - Amendment to the 28 MHz Bandplan in relation to the Amateur Satellite Service. This proposes the removal of the downlink only restriction on the 29.300-29.510 MHz satellite segment. See http://tinyurl.com/vienna2013-10M (http://uska.ch/)

+ VIE13_C5_03 - Increased Amateur-Satellite Service 144 MHz Usage. This proposes the introduction of a new satellite downlink band for CW/SSB transponders at 144.000-144.035 MHz: See http://tinyurl.com/vienna2013-2M (http://uska.ch/)

A report on the ARRL website has requested input for the IARU Region 2 conference will be held later this year in Mexico.. At this time it is not known if satellite allocations will be raised at the meeting in Region 2. The ARRL item is posted at: http://www.arrl.org/news/iaru-region-2-seeks-input-on-hf-band-plan This page includes instructions to post comments via e-mail to the ARRL as the IARU Member Society for the United States.

[ANS thanks Trevor, M5AKA and the ARRL for the above information]

May 2013 Launch for TURKSAT-3USAT Linear Transponder Cubesat

TAMSAT reports the TURKSAT-3USAT, the first communication nanosatellite mission of ITU, Istanbul Technical University, Istanbul, Turkey is expected to launch in the May 2013 timeframe aboard China's Chang Zheng-2D rocket. Also aboard this launch will be Ecuador's NEE 01 Pegaso 1U cubesat.

TURKSAT-3USAT is a three unit CubeSat developed to provide SSB/CW communications in a 680 km Low Earth Orbit. It will fly a V/U linear transponder developed by TAMSAT, the Turkish Amateur Satellite Technologies Organisation.

+ Uplink center frequency 145.965 MHz
  (145.940-145.990 MHz bandwidth)
  Receive sensitivity -120 dBm

+ Downlink center frequency 435.225 MHz
  (435.200-435.250 MHz bandwidth)
  Output power 30 dBm (1W)

+ CW beacon on 437.225 MHz

TurkSat features a 3U CubeSat structure of ISIS (Innovative Solutions In Space BV), Delft, The Netherlands, with a size of 10 cm x 10 cm x 30 cm. The total mass of the nanosatellite is ~ 4 kg. The computer is a Pumpkin OBC. A camera and an attitude determination and control subsystem is part of the mission.

The satellite has a de-orbiting system which will make it re-enter the atmosphere following completion of its life time. The deorbiting system consists of a lightweight thin membrane when deployed is expected to deorbit the nanosatellite within 25 years.

Additional information can be accessed on-line at: http://www.tamsat.org.tr/tr/turksat-3usat-is-almost-ready/

http://www.uk.amsat.org/?p670

[ANS thanks TAMSAT for the above information]

New Cuban Satellite Operators Now On-the-Air

Cuba's new amateur satellite group, Grupo de Radioaficionados para Operaciones Satelitales, or GROS says this week two Cuban amateurs have made their first satellite contact via SO-50. GROS Coordinator Raydel, CM2ESP reported on the success of Pavel, CO7WT and Jose, CM2XN, "This may look simple, but for a Cuban Ham this is a great success which follows many weeks of antenna building, equipment adjustments and learning, these two hams enjoyed their first success-contact on an FM transponder satellite. They know there is a lot more of operating skills to learn and they are very happy to do so."

Grupo de Radioaficionados para Operaciones Satelitales, loosely in-terpreted as "Ham Radio Group for Satellite Operations", says this reflects on the successful mentorship to get Cuban radio amateurs on the satellites. Few Cuban hams have the required radio gear and require a degree of inventiveness and perseverance to put their technical skills to the test to acheive success.

The intial success of this small group of Cuban hams hopes to inspire and train more hams to build their satellite stations, get on the air and activate new grids.

GROS hosts a VHF net in the Havana Province twice monthly on Friday. They are working on creating a monthly HF satellite net in the near future. GROS continues to work with Cuban National Amateur Radio Fed-eration, F.R.C., the Federaci[illegible]n de Radioaficionados de Cuba, on the logistical arrangements to hold the first national meeting of Cuban amateur satellite operators.

Raydel invites questions and comments to the group to be sent to any members of the Coordination Board using these contacts:

+ CO6CBF, Hector, Vice-Coordinator (co6cbf@frcuba.co.cu)
+ CO7WT, Pavel, Technical Vice-Coordinator (pavel@conas.cu)
+ CM2ESP, Raydel, Coordinator (cm2esp@frcuba.co.cu)

A video of Hector, CO6CBF, at the 2012 AMSAT Space Symposium talking about how a Cuban Ham operates via satellite can be found on YouTube: http://www.youtube.com/watch?v[illegible]cmIubIBQ4.

[ANS thanks GROS Coordinator Raydel, CM2ESP for the above information]

NASA Long-Distance Google+ Hangout to Connect with Space Station

In a first for the agency, NASA will host a Google+ Hangout live with the International Space Station between 11 a.m. to noon EST on February 22. Google+ Hangouts allow people to chat face-to-face while thousands more can tune in to watch the conversation live on Google+.

Although the deadline to submit video questions was February 12 you will be able to watch replies to selected questions. Several video questions will be selected and answered by astronauts on the space station and on the ground. Additionally, NASA will ask real-time questions submitted by followers on Google+, Twitter, and Facebook.

To join the hangout, and for updates and opportunities to partici-pate in upcoming hangouts, visit NASA's Google+ page:
https://plus.google.com/+NASA/posts

Information on this Hangout and future sessions can be found at:
http://www.nasa.gov/connect/hangout.html

[ANS thanks NASA for the above information]

JAMSAT 2013 Symposium in Tokyo - March 9-10

JAMSAT announces their 2013 Symposium to be held in Tokyo on March 9 to March 10. The Symposium will be held at the National Museum of Emerging Science and Innovation (Miraikan) - 7F Conference Room CR2. All amateur radio satellite operators are welcome to attend.

The Symposium schdule will be:

March 9
+ 14:30 - 17:00 Papers and Technical Presentations
+ 17:30 - 19:30 Dinner Party

March 10
+ 10:00 - 13:00 Papers and Technical Presentations

The list of technical topics includes:
+ Problem of 1.2GHz Band License
+ Interference with QZSS Satellite
+ FitSAT Report
+ JAMSAT Activities
+ Progress in Transponder and 38.4Kbps Transmitter
+ Noise Environment at 2.4GHz Band
+ Progress in Nippon University Cubesat "NEXUS"
+ Introduction to AMSAT-NA FOX-Project
+ SDR and Satellite Communication

Openings remain available for the addition of last minute presenta-tions on topics pertaining to amateur radio in space. If you are interested in making a presentation please contact madoguchi@jamsat.or.jp or ja3gep@jamsat.or.jp

Information on the Museum meeting location can be accessed on-line:
http://www.miraikan.jst.go.jp/en/

[ANS thanks Mikio Mouri, JA3GEP of JAMSAT for the above information]

ARISS School Contacts This Week

United Kingdom

An International Space Station school contact was successfully completed with participants at Breadalbane Academy, Aberfeldy, United Kingdom on February 12. The contact was made with a telebridge between NA1SS and W6SRJ.

Breadalbane Academy is a rural school serving Highland Perthshire in the heart of Scotland. The school has 700 pupils coming from Aberfeldy, Pitlochry, Rannoch and Dunkeld. The students are very interested in all aspects of the space program.

Manitoba, Canada

An International Space Station school contact was successfully completed with participants at Chief Peguis Junior High School, Winnipeg, Manitoba, Canada on February 13. The contact was made with a telebridge between NA1SS and VK5ZAI.

Chief Peguis Junior High is a grade 7-9 school with a population of about 550 students and staff. In April of 2011 Chris Hadfield made a personal appearance at the school to talk to the students. Those grade 7 students at that time are currently grade 9 students and they remember his visit. They feel they already have a personal connection with him.

This coming week International Space Station school contacts are planned on Tuesday and Friday with:

+ The 4th Dimotiko Scholeio Chaidariou, Chaidari (near Athens), Greece. This will be a direct contact via J41ISS on Tuesday, February 19 at 12:30 UTC.

+ The Uplands Elementary School, Penticton, BC, Canada, with a telebridge via IK1SLD on Friday, February 22 at 19:36 UTC.

ARISS is requesting listener reports for these contact. Due to issues with the Kenwood radio that are not fully understood at present, the Ericsson radio is going to be used for this contact. ARISS thanks everyone in advance for their assistance.
If you are in range the downlink is 145.800 MHz.

[ANS thanks ARISS for the above information]

Israeli Students Speak with Canadian Astronaut in Space

JERUSALEM (http://www.algemeiner.com/) - Ninth grade physics students at Hebrew University Secondary School (Leyada) in Jerusalem spoke with Canadian astronaut Chris Hadfield, as he orbited the Earth aboard the International Space Station (ISS) on Sunday, February 3.

The Israeli high school students were the recent winners of the Ilan Ramon Space Olympics hosted each year by the Ilan Ramon Foundation, established in honor of Israel's first astronaut, Ilan Ramon. Ramon perished in the Space Shuttle Columbia disaster with six other American crew members, when the shuttle disintegrated reentering to earth 10 years ago.

Out of the 2,000 students from across Israel who participated in the Space Olympics, Leyada's 19-member team won first prize, for building a space platform to repair satellites and constructing a guest-

house in space.

The first prize granted the winning students a chance to speak with Canadian astronaut Chris Hadfield, who recently spoke with public school students in Ontario. According to Leyada's Reuben Tel-Dan, the proud physics teacher who oversaw the project, "I believe that Leyada is the first school in Israel to communicate with space." The special event is part of NASA's Teaching From Space Program, which gives schoolchildren the chance to ask questions and hear answers from astronauts living aboard the space station via Amateur Radio on the International Space Station (ARISS). The contact is performed using the Amateur Radio telebridge network, a world-wide network of amateur radio ground stations that allow students to contact the space station, as it flies more than 200 miles above Earth.

Leyada students came prepared with a list of 20 questions for Had-field, from everything about what life in space is like to homesick-ness and boredom. One of the ninth grade students, Ron, asked Had-field where he slept more comfortably - on Earth or in the space station. Hadfield laughed, replying that "sleeping in the space sta-tion is comfortable, but I sleep better at home with my wife." An-other student, Yoni wanted to know how astronauts distinguish between day and night in the space station. Hadfield explained that there were 16 sunrises a day, but the crew uses an alarm clock for their sleep routines.

Along with the physics team, over 200 Leyada students listened care-fully to the audio conversation which took place at 11 am in the morning.

Although the weak signals cut the fascinating conversation short, for Ya'arit Segal, one of the student leaders of the project, the prize was worth the hours that she and her team spent on the project for the past three months. The ninth grader described many sleepless nights that she her teammates experienced creating their successful space project. "We spent days and nights working on our project and the process had a huge impact on us," she told Tazpit News Agency.

"I don't know if I'll be an astronaut someday," concedes Segal. "But it would be so interesting to conduct experiments in space and learn how to work together with a crew." Leyada's principal, Dr. Gilead Amir, was especially impressed with the students' initiative. "Today was a great example for all of us, both students and teachers - in learning how school projects can directly impact our lives. Some-times what we do at school can even lead to historical moments."

[ANS thanks NASA Teaching From Space and www.algemeiner.com for the above information]

Changes Announced at Space-Track Website to Access Tracking Data

This week the Space-Track website published the following memo to the satellite community who use their site to access the latest Keplerian Elements for tracking:

We are pleased to announce that we will upgrade the current http://www.Space-Track.org on Wednesday, 20 February 2013 at 12:00

PST to add the look and functionality that matches what is now on https://beta.space-track.org. The bulk file downloads from our current Space-Track site will continue to be available to scripters for a limited time after the upgrade using established URLs.

This upgrade will vastly improve how the Space-Track User community interacts with orbital element sets, the satellite catalog and conjunction data. With a robust Representational State Transfer (RESTful) Application Programming Interface (API), scripters will be able to get the latest data available, customized for their purposes.

Here are just a few of the new features that will become part of the upgraded www.Space-Track.org:

+ A streamlined and intuitive user interface that is easier to navigate and allows simple searches.

+ A robust help and documentation section - "Favorites" lists to identify logical groupings of catalog objects that Users can monitor via the web interface or with the site's API.

If you have production scripts that currently use beta.space-track.org, we recommend that you change your scripts to point at www.Space-Track.org on or after 20 February 2013.

If you have scripts that screen-scrape or download text/zip files from the current yellow-colored legacy www.Space-Track.org, they will continue to perform correctly for a few months, but we recommend that you quickly transition your scripts to take advantage of the new API. Documentation is available under "Help" to assist you, as well as the API query builder tool on the upgraded site.

We have also started sharing information about Space-Track's new features on tumblr, facebook and twitter, so please engage us on your favorite social media platform.

Our sites are http://space-track.tumblr.com, http://www.facebook.com/SpaceTrack, and http://www.twitter.com/SpaceTrackOrg

We understand that any significant upgrade has the potential to cause frustration for our user community and we apologize if this creates any adjustment problems for you. For help or clarification, please email us at admin@space-track.org.

Thank you,
The www.Space-Track.org Team

[ANS thanks Space-Track.org for the above information]

Satellite Shorts From All Over

+ Effective Monday, February 18 AMSAT-UK Change of Domain - the AMSAT-UK website will be moving to a new URL of: http://www.amsat-uk.org/

+ AMSAT has received the sad news of the passing of John Heath, G7HIA on February 15. John is remembered for his passion pas-

sion for satellites and the cosmos, his patience in explaining and teaching others, his companionship and friendship, and establishing and improving contacts with Russian satellite operators. See: http://www.amsat-uk.org/ (Andy, G0FSJ and Trevor, M5AKA)

+ Expedition 34 Flight Engineer Chris Hadfield of the Canadian Space Agency (CSA) speaks with Canadian-born actor William Shatner, the original Captain Kirk on the "Star Trek" television series on this YouTube video: http://www.youtube.com/watch?v=ro4zkw-LA

+ Enjoy a HD video, made by Sylvain Draux F0FVK, featuring the amateur radio satellite Fuji-OSCAR-29 (JAS-2). The video was shown at the Amateur Radio Fair held in Pordenone, Italy on November 17-18, 2012: http://www.uk.amsat.org/?p592

+ Doug, VK3UM reports that his EME Calculator Software - EMECalc Ver 9.00 has been released. Enhancements include expansion of the Yagi Data base with the VE7BQH yagi comparison tables allowing selections of over 490 antennas. Additional features include Beam Fill Calculations and an updated EME Planner Ver 1.78. The software can be found at: http://www.vk3um.com

+ The Gateway to Astronaut Photography of Earth hosts the best and most complete online collection of astronaut photographs of the Earth at: http://eol.jsc.nasa.gov/

+ Michael, HB9WDF is reported to be active as FM/HB9WDF from Martinique between February 11-21. Activity will be holiday style on the satellites AO-7, FO-29, VO-52, SO-50 and others if they are active, and the HF bands on PSK-31 and some SSB. QSL via home calls. (Ohio/Penn DX Bulletin No. 1099) and (DX Newsletter DXNL 1819 - Feb 13, 2013)

+ A video of the West Palm Beach Amateur Radio Group hosting the largest ever ARISS contact at the South Florida Science Museum has been posted at:
http://www.youtube.com/watch?feature=player_embedded&v=cGLKSvBnQ
This contact had a live audience of hundreds in the Museum plus a live TV feed to the entire county school system of about 180,000 students and 12,000 teachers. Plus a live audience on The Education Channel of another 25,000 in private and home schools, plus live broadcast on the PBS station with another 15,000 viewers and live feed on 2 Comcast Cable TV channels with another 30,000 viewers. It was also streamed live on the Internet. (Southgate.org)

+ The Winter 2013 CQ VHF Magazine has several articles of interest to amateur satellite operators:
  o Transatlantic Balloon Flight 2012 - CNSP 18 - K6RPT-12
  o K6RPT-12 Recovery Effort
  o A Panadaptor for FT-817 using the FUNCube Dongle
  o Raspberry Pi in the Sky
  o CQ Satellite and 6 Meter WAZ Award Update
  o Satellites Column by AMSAT's Keith Pugh, W5IU

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive addi-

tional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that, please keep in mind a team of astronomers from Johns Hopkins University in their paper, "The 2dF Galaxy Redshift Survey: constraints on cosmic star-formation history from the cosmic spectrum", reported that their survey of the color of all light in the universe added up to a slightly beige white they named 'Cosmic Latte'. The survey included more than 200,000 galaxies, and measured the spectral range of the light from a large volume of the universe. The hexadecimal RGB value for Cosmic Latte is #FFF8E7. (Credit: http://www.oddee.com/item_63950.aspx#lrmr9I6M5Glrh4rD.99)

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM